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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,748	02/20/2004	Alexandros T. Demos	008514/DSM/BCVD/JW	7358

7590 05/09/2005

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EXAMINER

NGUYEN, KHIEM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)	
	10/783,748	DEMOS ET AL.	
	Examiner	Art Unit	
	Khiem D. Nguyen	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

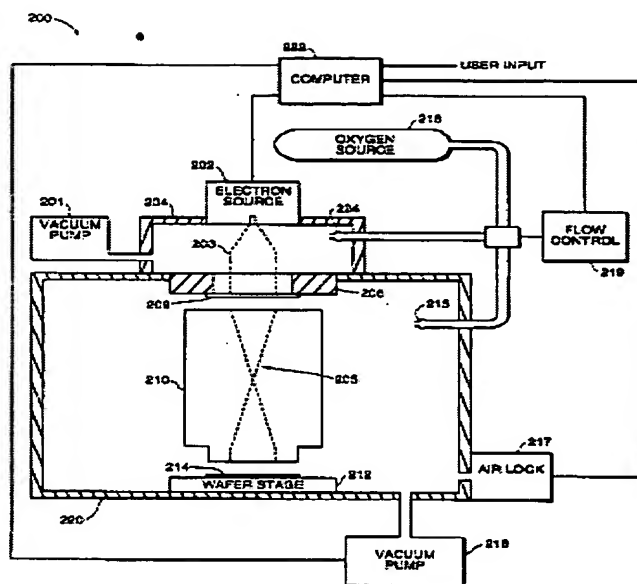
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(f) he did not himself invent the subject matter sought to be patented.

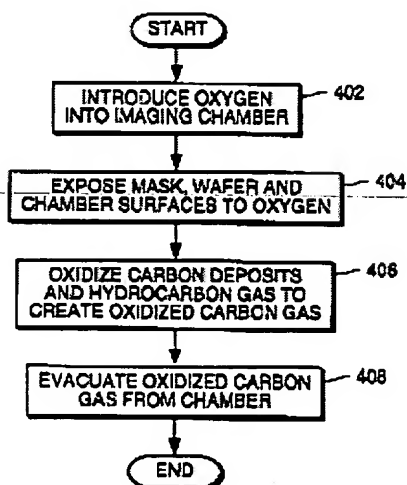
Claims 1 and 4-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Somekh (U.S. Patent 6,394,109).

The applied reference has a common claimed invention with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

In re claim 1, Somekh discloses a method of cleaning a chamber of an electron beam treatment apparatus 200 the method comprising: generating an electron beam 205 (col. 4, lines 19-34 and FIGS. 2A)

**FIG. 2A**

that energizes a cleaning gas (O_3 , N_2O) (col. 5, lines 39-56) in the chamber of the electron beam treatment apparatus; monitoring an electron beam current; adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value; and stopping when the cleaning gas pressure becomes substantially constant for a predetermined length of time (col. 5, line 66 to col. 6, line 30 and FIG. 4).



In re claim 4, **Somekh** discloses that the cleaning gas comprises an oxygen-based gas (col. 5, lines 38-56).

In re claim 5, **Somekh** discloses that the oxygen-based gas comprises one or more of O₂, ozone, NO, and H₂O (col. 5, lines 38-56).

In re claims 6 and 7, it is well-known to one of ordinary skill in the art at the time of the invention was made that the cleaning gas comprises a fluorine-based gas may comprises one or more of NF₃, F₂, CF₄, C₂F₆, C₃F₈, SF₆.

In re claim 8, **Somekh** discloses a method of cleaning an electron beam treatment chamber 200, the method comprising: generating an electron beam 205 (col. 4, lines 19-34 and FIG. 2A)

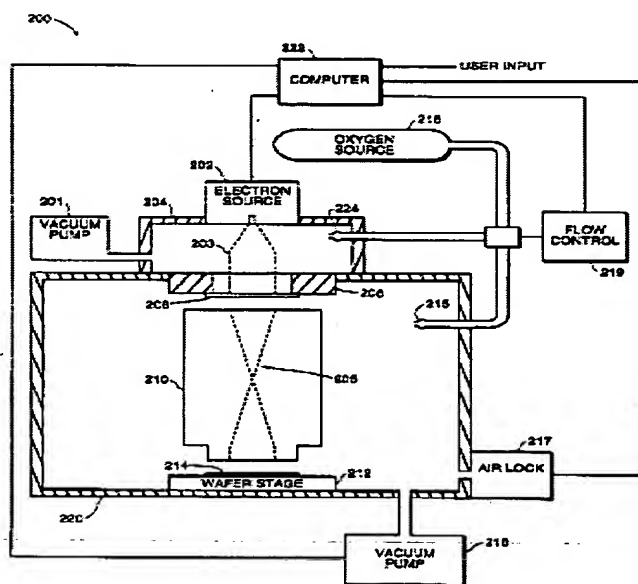
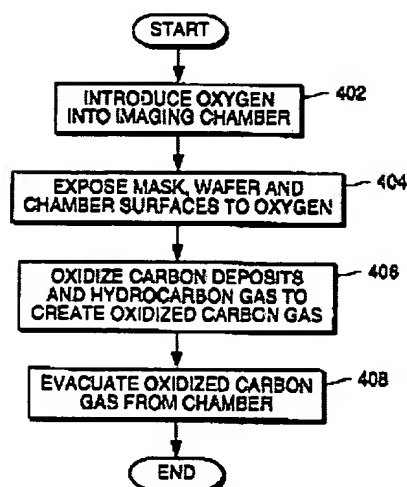


FIG. 2A

that energizes a cleaning gas (O₃, N₂O) (col. 5, lines 39-56) in the electron beam treatment chamber; and stopping after the cleaning gas pressure becomes substantially constant for a predetermined length of time (col. 5, line 66 to col. 6, line 30 and FIG. 4).



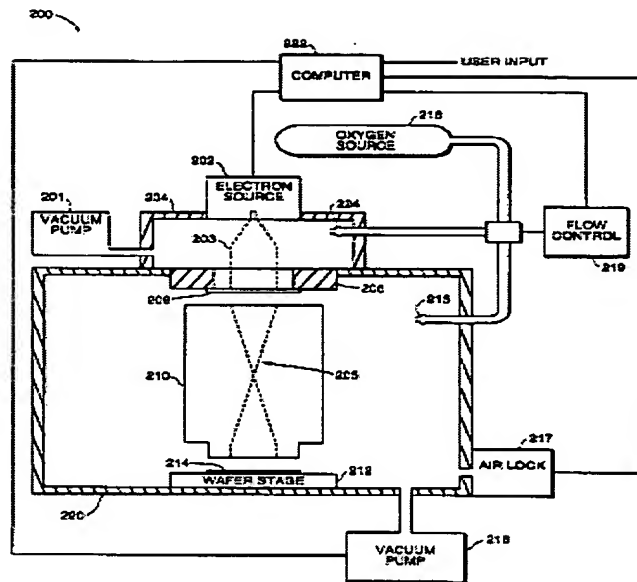
In re claim 9, Somekh discloses that the cleaning gas comprises an oxygen-based gas (col. 5, lines 38-56).

In re claim 10, Somekh discloses that the oxygen-based gas comprises one or more of O₂, ozone, NO, and H₂O (col. 5, lines 38-56).

In re claims 11 and 12, it is well-known to one of ordinary skill in the art at the time of the invention was made that the cleaning gas comprises a fluorine-based gas may comprises one or more of NF₃, F₂, CF₄, C₂F₆, C₃F₈, SF₆.

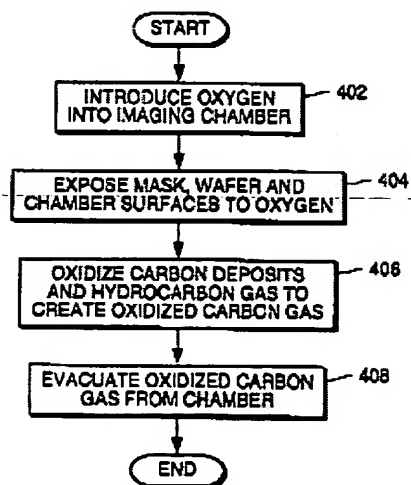
In re claims 13, 14, and 15, Somekh discloses that a gas pressure of about 1 Torr or greater is maintained in the chamber (col. 4, lines 35-60).

In re claim 16, Somekh discloses a method of cleaning a chamber of an electron beam treatment apparatus 200, the method comprising: Introducing a cleaning gas into the chamber (col. 5, lines 39-56); generating an electron beam 205 that energizes the cleaning gas in the chamber (col. 4, lines 19-34 and FIG. 2A);

**FIG. 2A**

setting in the chamber, an electron beam current of about 10 mA or above;

adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value; and determining an endpoint of the cleaning process and stopping introduction of the cleaning gas when the cleaning gas pressure reaches a substantially constant value (col. 5, line 66 to col. 6, line 30 and FIG. 4).



In re claim 17, **Somekh** discloses that the cleaning gas comprises an oxygen-based gas (col. 5, lines 38-56).

In re claim 18, **Somekh** discloses that the oxygen-based gas comprises one or more of O₂, ozone, NO, and H₂O (col. 5, lines 38-56).

In re claims 19 and 20, it is well-known to one of ordinary skill in the art at the time of the invention was made that the cleaning gas comprises a fluorine-based gas may comprises one or more of NF₃, F₂, CF₄, C₂F₆, C₃F₈, SF₆.

Claim Rejections - 35 USC § 102

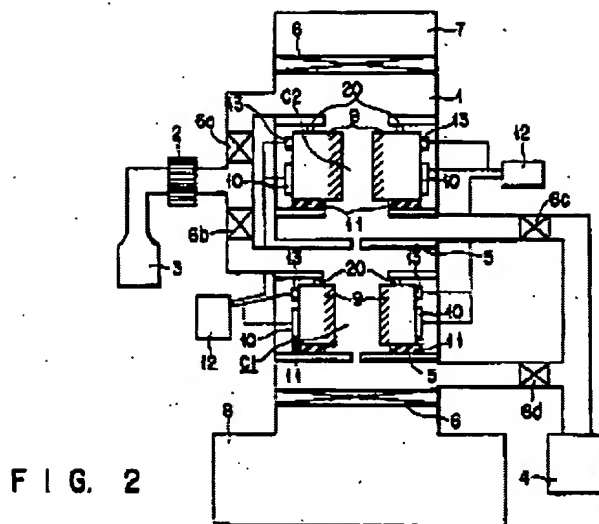
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 4-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohtoshi et al. (U.S. Patent 5,539,211).

In re claim 1, **Ohtoshi** discloses a method of cleaning a chamber of an electron beam treatment apparatus, the method comprising: generating an electron beam 7 that energizes a cleaning gas (O₂, CF₄) in the chamber of the electron beam treatment apparatus (col. 11, line 50 to col. 12, line 58 and FIG. 2);



monitoring an electron beam current (col. 14, lines 39-56); adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value; and stopping when the cleaning gas pressure becomes substantially constant for a predetermined length of time (col. 11, line 50 to col. 12, line 14).

In re claim 4, **Ohtoshi** discloses that the cleaning gas comprises an oxygen-based gas (col. 12, lines 10-16 and col. 12, lines 59-65).

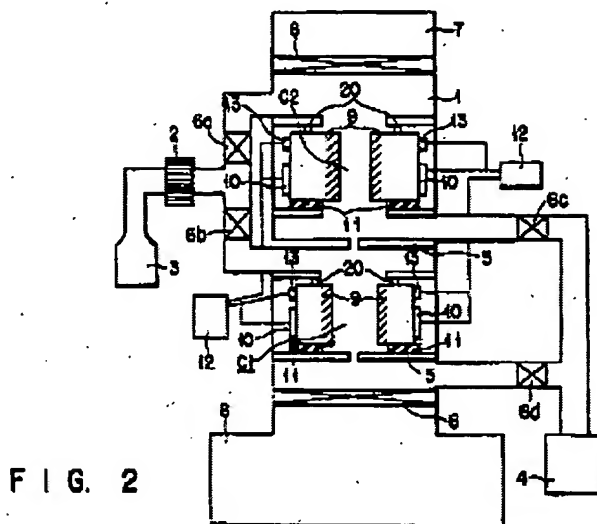
In re claim 5, **Ohtoshi** discloses that the oxygen-based gas comprises one or more of O₂, ozone, NO, and H₂O (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 6, **Ohtoshi** discloses that the cleaning gas comprises a fluorine-based gas (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 7, **Ohtoshi** discloses that the fluorine-based gas comprises one or more of NF₃, F₂, CF₄, C₂F₆, C₃F₈, SF₆ (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 8, **Ohtoshi** discloses a method of cleaning an electron beam treatment chamber, the method comprising: generating an electron beam 7 that energizes a cleaning

gas (O_2 , CF_4) in the electron beam treatment chamber (col. 11, line 50 to col. 12, line 58 and FIG. 2);



and stopping after the cleaning gas pressure becomes substantially constant for a predetermined length of time (col. 11, line 50 to col. 12, line 14).

In re claim 9, Ohtoshi discloses that the cleaning gas comprises an oxygen-based gas (col. 12, lines 10-16 and col. 12, lines 59-65).

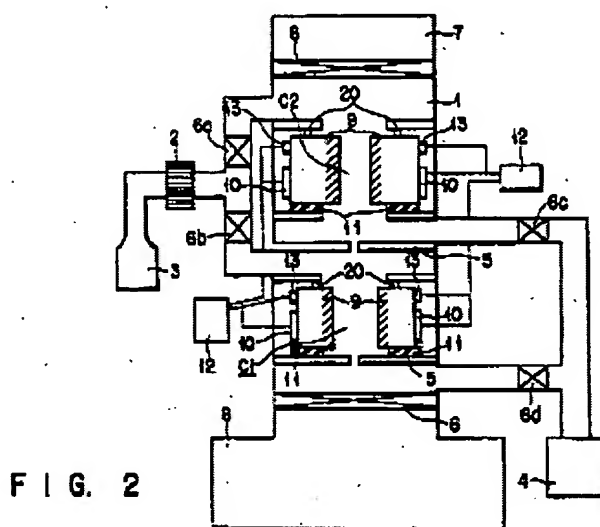
In re claim 10, Ohtoshi discloses that the oxygen-based gas comprises one or more of O_2 , ozone, NO , and H_2O (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 11, Ohtoshi discloses that the cleaning gas comprises a fluorine-based gas (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 12, Ohtoshi discloses that the fluorine-based gas comprises one or more of NF_3 , F_2 , CF_4 , C_2F_6 , C_3F_8 , SF_6 (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claims 13, 14, and 15, Ohtoshi discloses that a gas pressure of about 1 Torr or greater is maintained in the chamber (col. 11, line 50 to col. 12, line 9).

In re claim 16, **Ohtoshi** discloses a method of cleaning a chamber of an electron beam treatment apparatus, the method comprising: introducing a cleaning gas into the chamber; generating an electron beam 7 that energizes the cleaning gas (O_2 , CF_4) in the chamber (col. 11, line 50 to col. 12, line 58 and FIG. 2);



setting in the chamber, an electron beam current of about 10 mA or above; adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value; and determining an endpoint of the cleaning process and stopping introduction of the cleaning gas when the cleaning gas pressure reaches a substantially constant value (col. 11, line 50 to col. 12, line 14).

In re claim 17, **Ohtoshi** discloses that the cleaning gas comprises an oxygen-based gas (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 18, **Ohtoshi** discloses that the oxygen-based gas comprises one or more of O_2 , ozone, NO , and H_2O (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 19, **Ohtoshi** discloses that the cleaning gas comprises a fluorine-based gas (col. 12, lines 10-16 and col. 12, lines 59-65).

In re claim 20, **Ohtoshi** discloses that the fluorine-based gas comprises one or more of NF_3 , F_2 , CF_4 , C_2F_6 , C_3F_8 , SF_6 (col. 12, lines 10-16 and col. 12, lines 59-65).

Response to Applicant's Amendment and Arguments

Applicant's arguments filed February 28th, 2005 have been fully considered but they are not persuasive.

Applicants contend that the references, Someth (U.S. Patent 6,394,109) and Ohtoshi et al. (U.S. Patent 5,539,211) do not teach "adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value, and stopping when the cleaning gas pressure becomes substantially constant for a predetermined length of time".

In response to Applicants' contention that Someth and Ohtoshi do not teach or suggest "adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value, and stopping when the cleaning gas pressure becomes substantially constant for a predetermined length of time". Examiner respectfully submits that Somekh and Ohtoshi do teach adjusting a pressure of the cleaning gas to maintain the electron beam current at a substantially constant value (col. 5, line 66 to col. 6, line 30, Somekh). It is well-known that current is nothing more than the movements of electrons. Therefore, to control an electron beam, it is inherent that the current must be monitor and adjust to maintain the electron beam current at a substantially constant value.

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The cleaning process also inherently discontinue when the cleaning gas pressure becomes substantially constant for a determined length of time.

For these reasons, examiner holds the rejection proper.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D. Nguyen whose telephone number is (571) 272-1865. The examiner can normally be reached on Monday-Friday (8:30 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (571) 272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2823

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K.N.
May 03rd, 2005



W. DAVID COLEMAN
PRIMARY EXAMINER